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A New Genus of Notonemourinae (Plecoptera, Capniidae) from New Zealand

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Abstract

A NEW genus is erected to contain a new species of Notonemourinae.

INTRODUCTION

THE genus *Halticoperla* is erected to contain a new species of Notonemourinae. This new genus is more closely allied to *Notonemoura* than to the remaining New Zealand genera but differs from it in certain significant characteristics which form the basis of the diagnosis given below.

Halticoperla n.gen.

DIAGNOSIS: Forewing with 1A and 2A fused for a short distance near their mid-points; fork of Rs always beyond transverse cord. Pronotum with distinct pattern of dark markings. *Male Genitalia*: Subgenital plate produced posteriorly to form a narrow sharp-pointed ventral process shorter than in *Notonemoura*. Epiproct large, strongly curved forward and expanded distally. Tergite X with a longitudinal medial division. A long stout ventral lobe extends to abdomen tip. *Female Genitalia*: A long ovipositor with a tri-lobed tip arises medially from sternite VIII and curves above and beyond abdomen tip. *Larva*: Eyes larger than in other genera. Perimeter of pronotum outlined with bristles, its lateral margins strongly curved. Mesonotum with posterior margin convex. Hind femora considerably larger than in other genera. All legs clothed with heavy bristles.

TYPE SPECIES: *Halticoperla viridans* n.sp.

Halticoperla viridans n.sp.

DESCRIPTION OF IMAGO (Figs. 1–6).

Measurements: Body length, male 4–4.5mm; female 6–6.5mm.
Forewing, male 5.5–6.8mm; female 6.5–8.2mm.
Hindwing, male 4.5–5.5mm; female 5.5–7mm.
Antenna, male 3.5–3.75mm; female 5–5.5mm.

Colour (fresh specimens): Frons red-brown, epicranial plates olive, antennae basally off-white darkening to grey on distal two-thirds. Pronotum grey-green with dark lyre-like markings. Mesonotum and metanotum dark olive. Abdomen dorsally light green with reddish-brown at tergal margins and on dorsal mid-line. Legs green with a grey patch distally on

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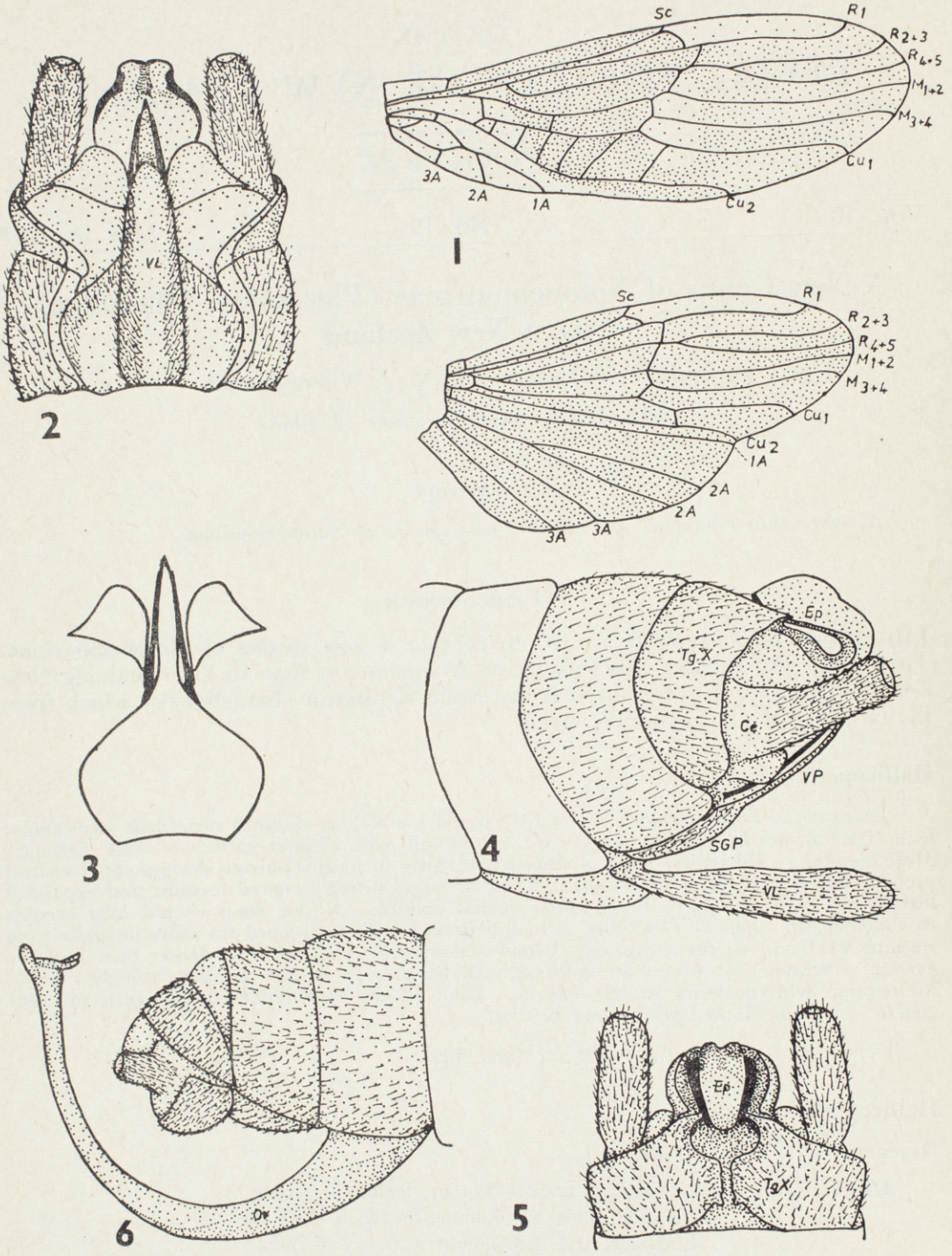

FIGS. 1–6. *Halticoperla viridans* n.g., n.sp.

Fig. 1, Wings. Fig. 2, Male genitalia, ventral view. Fig. 3, Male genitalia, subgenital plate showing projection and lateral spines. Fig. 4, Male genitalia, lateral view. Fig. 5, Male genitalia, dorsal view. Fig. 6, Female genitalia, lateral view. Ce, cercus; Ep, epiproct; Ov, ovipositor; Pa, paraproct; SGP, subgenital plate; Tg, tergite; VL, ventral lobe; VP, ventral process.

each femur; each tibia grey basally and tarsal segments 2 and 3 dark brown. Ventral surface green fading to off-white on abdomen. Ovipositor basally and ventrally brown and dorsally white. Wings grey with second quarter grey-brown and pterostigma, basal quarter and a medial area light grey. *Head*: Eyes large. Epicranium not appreciably bulged posteriorly. Lateral arms of epicranial suture ending level with mid-point of eyes; median stem of suture indistinct. Ocelli prominent. Maxillary palp with distal segment as long as segment 3 but longer than segment 4. *Thorax*: Pronotum rectangular, wider than long. A small peg-like projection points posteriorly beneath hind margin of metanotum. *Legs*: Hind legs much longer than fore or mid legs. *Wings* (Fig. 1): In both wings Sc is forked and Rs forked well beyond transverse cord. Forewing with 1A and 2A fused for a short distance near mid-points. Hindwing with 2A forked at one-third from base. *Male Genitalia* (Figs.2–5): A long stout ventral lobe arises from base of subgenital plate and projects as far as abdomen tip. Posterior margin of subgenital plate produced to form a narrow sharp pointed ventral process which is flanked by a pair of slender chitinised spines (paraprocts). Epiproct large and curved forward with its tip immediately above an oval membranous area which forms the rear of a longitudinal division of tergite X. Cerci unspecialised with flattened tips. *Female Genitalia* (Fig. 6): A long ovipositor with a ventral longitudinal chitinised strip and a tri-lobed tip arises from sternite VIII and curves upwards to terminate above and behind the abdomen tip. Cerci short with flattened tips.

Description of Larva (final instar) (Figs. 7, 8).

Measurements: Body length, male 5–6mm; female 6–7mm.
Antenna, male 2.5mm; female 3mm.
Cerca, male 2.5mm; female 3mm.

Colour (fresh specimens): Head with antennae dark grey; frons light brown, epicranial plates light mottled grey. Nota olive green; pronotum with dark lyre-like markings which may also be found on the mesonotum. Abdomen brown basally and dorsally, changing to green laterally and distally. There may be light markings on tergites, or, in specimens near to emergence, abdomen and nota may be almost uniformly brown. Legs green with femora grey distally, base and middle of tibiae grey. Body and appendages light green ventrally, fading to white on abdomen. *Head*: Eyes large and extending well back on epicranium. Ocelli prominent. Maxillary palp long, distal segment as long as third and longer than fourth. Mandible with well-developed teeth and molar region. Antennae of approximately 40 short segments. *Thorax*: Pronotum wider than long with strongly convex lateral margins; entire pronotum outlined with bristles. Mesonotum with a row of bristles extending from base of one wing pad to the other; posterior margin without bristles. Metanotum with a small posteriorly projecting peg arising from beneath hind margin. *Legs*: Hind femora very large (twice length and width of fore femora) and clothed in bristles posteriorly. Fore and mid femora and all tibiae clothed in bristles. *Abdomen*: Each tergite with a triangle of bristles on mid-line. Tergite X of male conspicuously divided mid-posteriorly. Cerci with a ring of bristles around posterior of each segment.

In larvae the developing male genitalia is most conspicuous but the developing ovipositor of the female is hidden within the body and only the tip can be seen as an oval on sternite VIII.

In determining material, consideration must be given to the fact that storage in alcohol causes material to lose its green colouration.

Notes on Biology

Larvae have been found in both hygropetric and torrential biotopes*. Unlike the larvae of most New Zealand stoneflies, they run rapidly for cover when disturbed and are reminiscent of many N.Z. Leptophlebiid mayfly larvae in this respect. Larvae have been observed resting on damp stones up to a foot above the water surface but when disturbed (e.g., by a shadow passing over them) they immediately move down into the water.

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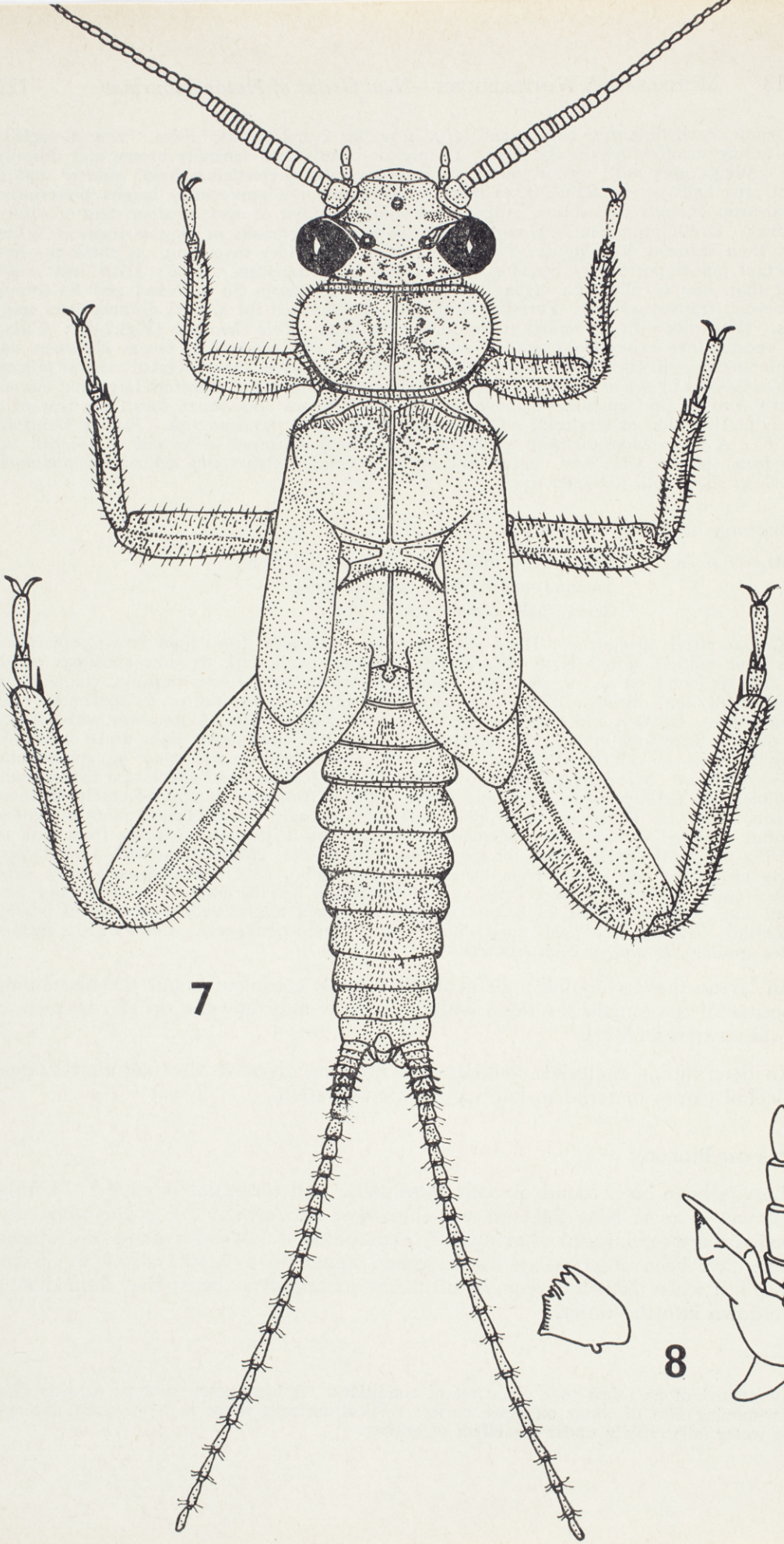
* The term biotope refers to a given set of conditions. A hygropetric biotope consists of a slow-moving film of water on more or less vertical surfaces while in a torrential biotope the water falls rapidly under the effect of gravity.



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Adults of *Halticoperla viridans* use their long hind legs to leap away from danger and usually take wing in mid leap. Their agility and alertness is most unusual in N.Z. Plecoptera although generally the Notonemourinae are more alert and agile than representatives of other families.

Type Material: Holotype female and allotype male, Fuchsia Greek, Lower Buller Gorge, near Westport, 19/i/66, I. D. McLellan. Paratypes, 2 nymphs, Fuchsia Creek, Lower Buller Gorge, 26/i/66, I. D. McLellan. The above in the collection Entomology Division, D.S.I.R., Nelson. Paratypes deposited in Canterbury Museum, Christchurch: 1 male, 1 female, Fuchsia Creek, 19/i/66, I. D. McLellan; 2 larvae, Fuchsia Creek, 26/i/66, I. D. McLellan. Paratypes deposited in the collection of the Auckland War Memorial Museum: 1 male, 18/iii/66; 2 females, 20/iii/65 and 4/iii/66; 6 larvae, 20/iii/65, tributary to Makahika Stream (a major tributary of the Ohau River), five miles east of Levin, M. J. Winterbourn.

Other Material Examined: M. J. Winterbourn collection (M. J. Winterbourn leg.). Hygropetric biotope, second tributary to Makahika Stream, 2 larvae, 18/iii/66. Hygropetric biotope, Khandallah Stream, Wellington, 1 larva, 18/vi/64. I. D. McLellan collection (I. D. McLellan leg.) Fuchsia Creek, Buller Gorge, Westport, 1 female, 19/i/66; 1 male, 1 female, 18/i/66; 2 females, 8 larvae, 26/i/66; 5 larvae, 2/vii/66. Torrential biotopes near Ohikanui River, Buller Gorge, 5 larvae, 16/iv/66. Hygropetric biotope, Hawke's Crag, Buller Gorge, 2 larvae, 19/vi/66. Torrential biotope, opposite Cora Lynne, Waimakariri Valley, 2 females, 7 larvae, 11/xii/66. Torrential biotope, Otira Gorge, Arthur's Pass, 1 female, 8 larvae, 11/xii/66. Torrential biotope, Lewis Pass summit, 1 larva, 14/xii/66. Divide Creek, Eglinton–Hollyford, Fiordland, 464 metres a.s.l., 8 larvae, 23–24/xii/66. Torrential biotope, near Pivot Creek, Haast Valley, 1 female, 1 larva, 25/xii/66. Waterfall beside Lake Gunn, Fiordland, 9 larvae, 23/xii/66. Makarora Valley, Haast, 3 larvae, 22/xii/66. Torrential biotope, Lake Wanaka, 5 larvae, 22/xii/66. Torrential biotope, near Fuchsia Creek, Buller Gorge, 1 male, 1 larva, 29/i/67. Torrential biotope, Otira Gorge, 480 metres a.s.l., 16 larvae, 26/ii/67. Collection of Max-Planck Institute of Limnology, Germany, 1 male, 1 female, Fuchsia Creek, 26/i/66, I. D. McLellan leg.

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Figs. 7–8. *Halticoperla viridans* n.g., n.sp.

Fig. 7, Larva (final instar), dorsal view. Fig. 8, Larval mouthparts, ventral view of left maxilla and left mandible.